

MAR 10 2016

Mr. David Anderson
Glenn Springs Holdings, Incorporated
5 Greenway Plaza, Suite 110
Houston, Texas 77046

RE: Vapor Intrusion Investigation Work Plan Review
Occidental Chemical Corporation, 6200 S. Ridge Road, Wichita, Kansas
RCRA ID #: KSD007482029.

Dear Mr. Anderson:

The U.S. Environmental Protection Agency (EPA) has reviewed the Vapor Intrusion Investigation Work Plan dated January 15, 2016 prepared by GHD Services, Inc. The EPA provides comments below on the plan.

General Comments

The VIIWP addresses three site-related exposure areas (Non-process, Process & Landfill); however a discussion is needed regarding any offsite occupied buildings/residences overlying or within 100 feet of the groundwater contaminant plume(s) and whether these structures have been evaluated for potential VI risks to human health. Note that the EPA Region 7 recommends the collection of four quarterly collocated and concurrently sampled sub-slab, indoor air and ambient outdoor samples to effectively evaluate the VI pathway. Although exterior soil gas samples have been used in EPA Region 7, any detects at a 1E-06 level in samples collected adjacent to the building (within 5 ft.) warrant the collection of sub-slab/indoor air samples. Furthermore, the VI Database indicates that exterior soil gas concentrations collected at depths shallower than 3 meters may not be representative of soil gas concentrations measured directly beneath the building foundation. Additionally, a figure(s) is needed that maps the marked utility corridors in areas near the buildings that may act as preferential pathways.

Specific Comments

- 1) Section 2.2.2, Non-Process Area – Groundwater, Page 5: Based on Figure 9, relatively few occupied buildings exist in the Non-Process area; meanwhile, Figure 8 shows 2 sets of well clusters in this area (MW147S2/S3 and MW148S2/S3) which are generally near those buildings, but no results were provided from either set of wells. Are there groundwater results from the wells? Sampling points ("GP") were identified on the table, but no GP locations were provided on Figure 8. Are the GP locations near the buildings, and were the samples collected from the S2/S3 zone? Were there wells installed at those GP locations or did the probe come back four separate times to sample the groundwater? Were each of the four samples collected in September, or at different times of the year? Discuss whether these samples are representative of potential seasonal changes.

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- 2) Section 2.2.2, Process Area – Soil/Groundwater, Page 5: According to the RSLs, 2-chlorophenol is considered volatile but no carcinogenic or non-carcinogenic values exist. The compound 3/4-chlorophenol is not listed in the RSLs and neither compound is listed in the VISL calculator. These COPCs can be considered in a cumulative risk evaluation.
- 3) Section 2.2.3, Identification of Facility Buildings, Page 6, Paragraph 1: The text infers that the EPA's VI Guidance indicates if the structure is a trailer that is elevated off the ground surface and there is no skirting around the bottom of the trailer then this structure would not be considered enclosed. The EPA VI Guidance indicates that "trailers enclosed at the bottom by a skirt are expected to have greater potential for VI than would non-enclosed trailers. Wind movement between the ground surface and the bottom of the non-enclosed trailer would tend to minimize vapor buildup and associated potential for vapor flux into the building". The guidance doesn't indicate that these structures need not be evaluated for potential VI risks to human health. Provide further justification for not evaluating, or include such structures.
- 4) Section 2.2.3, Identification of Facility Buildings, Page 6, Paragraph 2: Indicate the type of building construction (e.g., slab-on-grade, basement, type of siding, windows, vents, fans, overhead doors, HVAC, air exchange rate, etc.). As mentioned above, the EPA VI Guidance does not state that the VI pathway will be incomplete at elevated structures not in direct contact with the ground surface, only that this would minimize the potential for VI. Additionally, indoor VI sampling should be conducted in pressurized buildings to verify this ICM is effective with demonstrated differential pressure.
- 5) Section 2.2.3, Identification of Facility Buildings, Page 6, Paragraph 3: As depicted on Figure 9, all site associated buildings appear to be located above the groundwater plume. An iso-concentration map could be provided for each COPC that is based on the VISL calculator generated risk screening level to evaluate the potential VI risk to human health. Any deep soil impacts within the saturated zone of the first water bearing unit could potentially impact groundwater and therefore present a potential VI risk to human health. Unless it can be ascertained that relatively uncontaminated groundwater continuously overlies impacts at depth, a changing water table could expose impacted water/saturated soil, and structures above these areas need to be evaluated for potential VI risks. Provide a discussion.
- 6) Section 3, Soil Gas Quality Investigation, Page 7: Define adjacent or located within proximity to the building as within 5 ft. Shallow probe depth should be about 5 ft.

- 7) Section 3.1, Soil Gas Probe Installation, Page 7: The text indicates soft digging techniques will be conducted at each drilling location to a depth of at least 6 ft. below grade. The following paragraph indicates the probes will be installed using DPT with the top of the screen interval positioned approximately 5 ft bgs. If the vacuum excavation/air knifing removes soil to 6 ft bgs at each location explain why DPT is needed for probe installation. What size hole will be created using the indicated techniques? Will soil removed by vacuum excavation/air knifing be placed back in the hole? Will this be the same material the DPT pushes the probe into? How will a screen placed in excavated material be representative of soil gas COC concentrations in the shallow subsurface at 5 ft.? Will the contaminated vapors more rapidly migrate to the surface in the freshly excavated soil and enter the atmosphere thereby negating potential soil gas concentrations? If the probe is placed adjacent to the excavated area, will the removed soil act as a preferential pathway for potential contaminated vapors thereby significantly reducing the representativeness of the soil gas sample? What is the surface material adjacent to the building (e.g., grass, asphalt, concrete, etc.)?
- 8) Section 3.2, Soil Gas Probe Sampling, Page 7: The text indicates two rounds of soil gas sampling will be conducted in order to obtain consistent results. See the general comment about the EPA's recommendation for 4 quarterly samples. Soil vapor results from the same probe location typically are not consistent due to temporal variability. The soil vapor probes installation will be done using vacuum excavation/air knifing; what about use of DPT as indicated in Section 3.1? The text indicates this will result in a significant disturbance of existing soil conditions but will not be sampled for 1 to 2 weeks to allow subsurface conditions to equilibrate and soil gas concentrations to stabilize. The DPT methodology for soil gas probe installation/construction described in Appendix B doesn't consider the use of vacuum excavation/air knifing prior to installation of the probe. Based on the size of hole created by the air knifing, the annulus may be much larger than that created through use of DPT (about 3.5 inches) and require more silica sand and bentonite. Probe construction is critical to collection of representative samples. Leak testing of each probe location (sampling train assembly above ground and ambient air leak between screen and surface) is necessary prior to sampling.

Please provide revisions based on the comments above within 30 days receipt of this letter. If you have questions about this letter you may reach me by phone at (913) 551-7279 or email me at roberts.bradley@epa.gov.

Sincerely,

Brad Roberts
Environmental Scientist
Waste Remediation and Permitting Branch
Air & Waste Management Division

cc: Lisa Thurman, Occidental Chemicals
Everett Spellman, KDHE-BWM
Bruce Clegg, GHD Services, Inc.